



Community-Based Solutions for Effective Malaria Control: Lessons from Mozambique

March 2005



Malaria Case Study

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World Relief, the relief and development arm of the National Association of Evangelicals, is a private voluntary organization that works with, through and from the church to build capacity of communities and promote long-term stability in post-conflict societies. World Relief provides emergency relief and sustainable development through programs of disaster response, refugee resettlement, food security, microenterprise, maternal and child health and HIV/AIDS prevention and care within 30 countries worldwide. World Relief is a member of the CORE Group.

The CORE Group, a membership association of international nongovernmental organizations registered in the United States, promotes and improves the health and well being of women and children in developing countries through collaborative NGO action and learning.

The CORE Malaria Working Group assists CORE member organizations and others to improve malaria prevention and case management programs through the following country-level activities: 1) establishment of NGO secretariats to enhance partnerships and collaborative action, 2) organization of workshops for learning and dissemination, and 3) documentation of innovative practices and lessons learned.

This case study documents findings from the World Relief Child Survival Program (CSP), designed and implemented in Mozambique by Pieter Ernst from 1999-2003, and sponsored by World Relief and the U.S. Agency for International Development (USAID). This case study was written and compiled by Anbrasi Edward and Kathryn Bradbury of World Relief, with contributions from Pieter Ernst, Melanie Morrow and Meredith Long.

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Acronyms

GRM	Government/Republic of Mozambique
IMCI	Integrated Management of Childhood Illness
ITN	insecticide-treated mosquito net
MOH	Ministry of Health
PSI	Population Services International
PVO	private voluntary organization
RBM	Roll Back Malaria
UNICEF	United Nations Children's Fund
USAID	U.S. Agency for International Development
VHC	Village Health Committee
WHO	World Health Organization
C-HIS	Community Health Information System

Introduction

Despite being a preventable and treatable disease, malaria continues to rank as a leading cause of mortality in much of the developing world, causing 1.2 million deaths annually. Ninety percent of these deaths occur in sub-Saharan Africa. Pregnant women and young children bear the overwhelming burden of malaria. One in five child deaths in Africa is attributed to malaria; those who survive may suffer recurrent fever, malnutrition, cognitive delays, and in cases of severe malaria, neurological damage. Pregnant women and infants are also highly vulnerable to malaria-induced anemia, premature delivery and low birth weight. Beyond its high contribution to mortality and morbidity, malaria impacts social and economic structures, costing African nations an estimated \$10–\$12 billion in lost gross domestic product each year.¹

Mozambique is among the ten nations most affected by malaria. Stable transmission rates make malaria Mozambique's primary cause of morbidity and mortality, resulting in an estimated 44,00–67,000 malaria-specific deaths each year, across all age groups.² Because the entire country is malaria endemic, approximately 682,000 pregnant woman and 2.8 million children under age five are at risk. Well known as a disease that both causes and is caused by poverty, malaria significantly burdens Mozambican families, communities, the health system, and national resources. Controlling malaria is one of the nation's greatest challenges. Country specific data indicate that malaria contributes to 15% of the disease burden in the general population with higher figures for children under 2 years, accounting for 40% of outpatient consultations, 60% of pediatric inpatients, and a third of hospital deaths.³

The Government of Mozambique (GRM) and Roll Back Malaria (RBM) partners; the United Nations Children's Fund (UNICEF), the World Health Organization (WHO), the U.S. Agency for International Development (USAID), the World Bank, the NGO community and the private sector, each have made strong commitments toward reducing malaria in

Abuja Malaria Targets for 2005

- At least 60% of those at risk, especially young children and pregnant women, will benefit from the use of insecticide-treated mosquito nets
- At least 60% of those with malaria will have access to effective and affordable treatment within 24 hours of onset of symptoms
- At least 60% of pregnant women will have access to preventive and effective treatment against malaria.

1. WHO Roll Back Malaria Department Country Fact Sheets.

2. 1998, WHO, SAMC.

3. USAID Mozambique Country Strategic Plan, FY 2004–2010.

Mozambique since the launch of RBM in 1999. In response to targets for 2005 set at the Abuja conference, the National Malaria Control Program advocates community-based strategies for prompt and correct care-seeking practices, community-based distribution of first-line drugs for treatment, and social marketing to improve access and demand for insecticide-treated mosquito nets (ITNs).

Since 1994, the World Relief “Vurhonga” Child Survival Program (funded jointly by World Relief and USAID) has addressed the burden of malaria in Gaza Province, Mozambique, through use of a strategy known as the Care Group Model. Vurhonga project staff developed the model as an efficient and cost-effective means to reach every household within a defined geographic area. The model has demonstrated considerable success in malaria control by building health system capacity to deliver effective treatment and community capacity to effectively address behavior change at the local level.

Use of the Care Group Model has resulted in the following achievements (1999–2003):

- Increased use of ITNs by pregnant women and children under 2 years of age from 1% to 85%.
- Improved community access to health facility and essential drug treatment from 65% to 99%.
- Improved care-seeking practices: Percent of children under 2 years seen at a health facility within 24 hours of malaria symptoms increased from 28% to 90%.

Vurhonga 2 Child Survival Project Summary

Strategy	Result
1. Strengthening health system capacity for improving quality of care	<ul style="list-style-type: none"> – Trained health workers in malaria prevention and case management – Implemented an effective drug management system – Collected and disseminated surveillance data through a Community Health Information System (C-HIS), which informed district MOH, health facility staff and community leaders and enabled timely decision making at all levels. – Facilitated joint planning for malaria prevention by building working partnerships between the health system and community groups and encouraging collaboration with other NGOs.
2. Ensuring access to health services	<ul style="list-style-type: none"> – Trained 30 <i>socorristas</i> (trained health workers authorized to provide basic primary care and essential drugs at health posts) to provide health care in health posts, improving community access
3. Training caregivers to achieve 100% coverage for health education	<ul style="list-style-type: none"> – Trained 2,315 volunteers organized in network of Care Groups to provide health education to caretakers in 10 households each for behavior change and to access care from trained providers
4. Creating effective links between communities and the health system	<ul style="list-style-type: none"> – Developed Village Health Committees to supervise <i>socorristas</i> to ensure quality of care, financing mechanisms, mobilizing communities to access care and supporting volunteer initiatives in the community – Organized Care Groups of pastors, who retain status and significant influence to ensure alternate educational channels for malaria prevention and treatment and to discourage harmful treatment practices.

Situational Analysis: Gaza Province, Mozambique

In 1992, Mozambique emerged from decades of civil war as one of the poorest, most debt-ridden countries in the world. One-third of the health infrastructure was destroyed, and the nation reported the worst health indicators in the developing world. The country has since made significant strides in rebuilding its health system, yet as of 2002, 60% of the population still lacked access to health care (defined as accessibility to trained provider within 5 kilometers of home).⁴

Located in southern Mozambique along the western shore of the Limpopo river, Gaza's estimated population included approximately 227,300 inhabitants (2002 figure), including 140,000 in Chokwe district and 83,000 within Guija and Mabalane. The region was and continues to be rural; most families are subsistence farmers with an average income of less than \$2 per day. Shangan is the first language and ethnic identity of most communities. The culture is patriarchal and patrilocal, with a disproportionate ratio of women (58%) to men (42%). Most households are female-headed due to the pull factor of migrant labor common throughout southern Africa. Health and socioeconomic indicators for Gaza rank poorly in comparison to national

*Southern
Mozambique's
Gaza Province
is home to
227,300
residents.*



4. DHS Mozambique 2000.

indices and other sub-Saharan countries. Life expectancy for women when World Relief first initiated the project in Gaza was 42 years, the female literacy rate was 23%. Infant mortality was recorded at 135 per 1,000 live births; the under five-mortality rate was 208 per 1,000 live births.

In selecting a name for the child survival project, local staff chose the Shangan word *Vurhonga*, which means “dawn.” They felt that the metaphor of light breaking through darkness was a fitting representation of what their project would be, and their hope that the “dawn” of new knowledge and health behaviors would save lives and strengthen communities within Gaza.

Building upon the success of the Vurhonga 1 project, World Relief extended the Care Group Model and child survival effort in 1999 through a follow-on 4-year, USAID-funded project (Vurhonga 2) in neighboring Chokwe district.

In Chokwe, baseline survey results mirrored national statistics, revealing malaria and diarrhea complicated by malnutrition to be the primary cause of childhood mortality. The baseline survey revealed that two-week prevalence for fever among children under five years of age was reported at 50%. Less than half the population lived within 5 kilometers of a health post and for some the distance was as far as 80 kilometers. Poor roads and long distances prevented timely care-seeking, which is necessary to treat malaria infections and prevent death. In addition, drug supplies and quality of care at the facilities were inconsistent and inadequate. Most people therefore turned to readily accessible traditional healers for treatment of convulsions and other symptoms perceived to be spiritual in etiology. The total population of the project in Chokwe was 140,000; the target beneficiary population was 53,415 children under two years and women of childbearing age.

Vurhonga Child Survival Project: Approaches and Results

The Vurhonga Program began as a USAID-funded Child Survival project, but evolved into a full-fledged program after attracting two additional rounds of funding and establishing additional activities outside of USAID cooperative agreements. The initial, 4-year project began in 1995 and targeted beneficiaries in Guija and Mabalane districts of Gaza Province. Successful achievements and community infrastructure established within the first Vurhonga project spurred the award of subsequent USAID support to extend Vurhonga's impact first to neighboring Chokwe district (Vurhonga 2 project, 1999–2002) and currently through a provincial-level Expanded Impact grant (2004–2009). The Vurhonga program has matured over the past decade to include broader community development activities, working in partnership with various international organizations, including UNICEF, to address multisectoral needs throughout Gaza province.

Both *Vurhonga* projects sought to improve morbidity and mortality among children under two years of age and women of childbearing age through Integrated Management of Childhood Illness (IMCI)-focused interventions. The projects addressed vital community health needs, including malaria, pneumonia, immunization, nutrition, control of diarrhea and hygiene, maternal care and HIV / AIDS. Because both the Demographic and Health Survey (DHS) and baseline surveys indicated malaria to be one of the primary causes of death among beneficiaries, Vurhonga 2 (in Chokwe) focused the majority of its resources on addressing the combined burden of malaria and malnutrition. The primary strategy was to improve prevention and care-seeking efforts at the community level through World Relief's unique Care Group model implementation strategy.

Specific objectives included insuring that all pregnant women and young children use ITNs regularly and seek care at a health center for suspected malaria within 24 hours. By focusing on education and mobilization to ensure compliance, and on strengthening the health system to ensure access to care and essential drugs, the Vurhonga 2 project was able to empower communities to adequately prevent and respond to malaria.

Vurhonga 2 reported the following results:

Availability of Antimalarials: In partnership with the health center staff, the Vurhonga 2 project developed a drug management system that ensured drug availability and decreased health facility stock-outs of first-line antimalarial drugs from 20% early in the project to less than 5% by mid-term.

Rapid Treatment: Percent of children under two years old treated for fever within 24 hours by a trained provider at either at a health post (*soccorrista*) or staffed health facility increased from 28% to 90%.

Malaria Incidence: Preliminary DHS (2003) data for Gaza province indicated a decline to 28.6% for 2-week prevalence of fever for children under 2 years old, compared to the DHS 1997 which reported 42% for Gaza Province. Project data indicates a decline in 2-week prevalence from 50% at baseline to 6.6% at the end of the 4th year, due to improved preventative behaviors and rapid care-seeking.

Summary of Indicators for Malaria Intervention: Vurhonga

	Baseline	Mid Term	Final
Communities with access to health services (either through health post or staffed health facility) within 5 kilometers.	65%	99%	99%
Children under 2 years old who slept under an ITN in the previous night	1%	81%	85%
Caretakers of children (0–23 months) with fever (suspected malaria) in the last 2 weeks treated within 24 hours in a health facility	28%	89%	90% (71–100)
Incidence of fever within past 2 weeks	50%	X	6.6%

**Data based on a 30 cluster survey.*

Trends in Mortality Reduction: Examination of the Census and C-HIS data during the final evaluation of Vurhonga 2 (Chokwe District) indicated a declining trend in early childhood mortality within Chokwe district. World Relief attributed mortality decline to Vurhonga’s comprehensive intervention mix.

	2000–2001	2001–2002	2002–2003
Births	4,557	6,244	6,410
Infant deaths	318	231	153
Infant Mortality Rate	70	37	23.9
Under Age 2 Deaths	543	408	289
Under Age 2 Mortality Rate	119	65	45
PH Child Death rate	189.7 (2000)	30.3	15

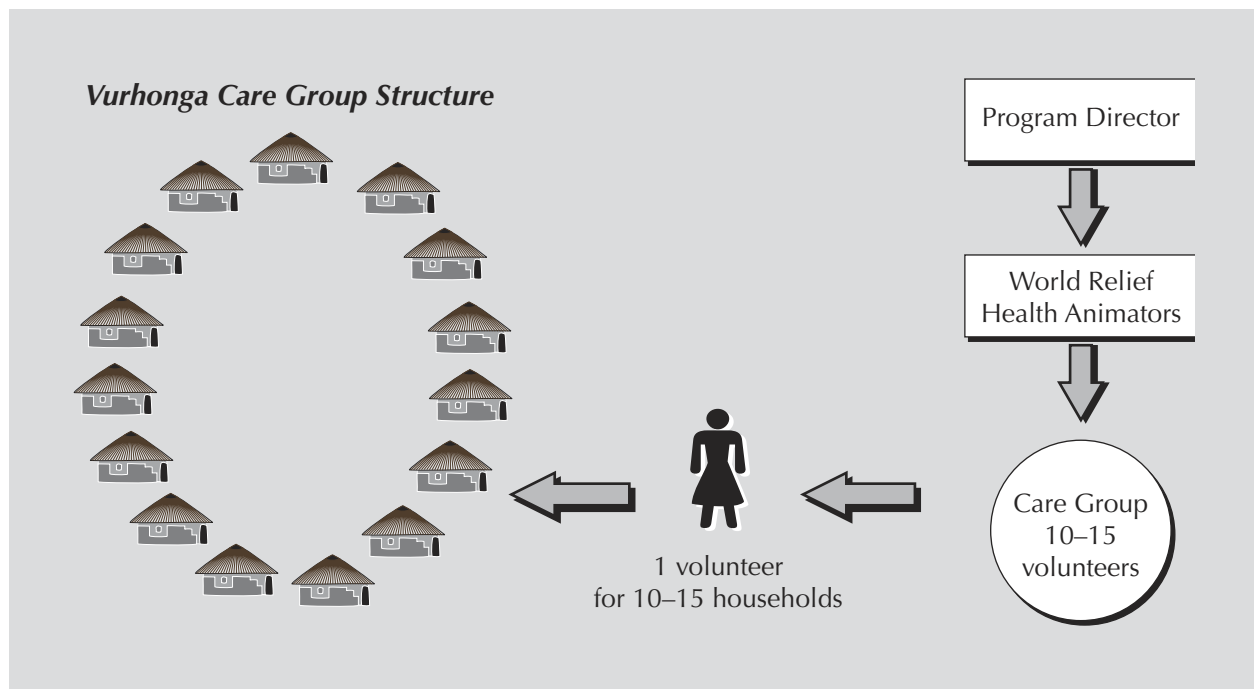
Care Group Model: Changing Communities

Both internal review and repeated external evaluations of the Vurhonga program⁵ have consistently determined World Relief’s unique Care Group Model implementation strategy to be the key to Vurhonga’s success on multiple levels.

5. Final Evaluation Report Vurhonga 1, Final Evaluation Report Vurhonga 2, Focus Group Discussion Results and other qualitative assessment methods, World Relief.

Dr. Pieter Ernst and the Vurhonga 1 management staff designed the model to be a cost-effective strategy for implementing a broad range of health interventions within a large population while at the same time maintaining intensive support to individual beneficiaries. The Care Group Model is based on a vast network of volunteers organized into supportive units called Care Groups. These volunteers conduct home visits to teach mothers key preventive and care-seeking practices and to collect vital data regarding births, deaths and public health concerns. During biweekly Care Group meetings, volunteers report back and meet with their designated World Relief staff member who shares a new health lesson, helps the volunteers practice skills to effectively train mothers during home visits, collects vital data, and provides volunteers with general support and encouragement. Each village (approximately 54,000 beneficiary households in total) within a project area has its own Care Group made up of 10–15 volunteers. Each individual volunteer is responsible for 10–15 households within their own neighborhood.

Vital events data collected by volunteers at the household level and compiled at Care Group meetings are synthesized by Vurhonga staff and presented to MOH staff through regular meetings and back to communities in the form of pictorial diagrams and graphs that are appropriate for low literacy audiences. This community-based health information system (C-HIS) has become a tool not only for project managers to monitor impact and tailor implementation strategies, but was used to inform decisions made by community leaders, village health committees, and the MOH. For example, C-HIS data were used to alert the district MOH to early signs of a cholera outbreak in Chokwe district (2001), while neighboring districts were caught unaware. Communities responded to growth monitoring data indicating a sudden spike in malnutrition rates during the 2002 “hungry,” or non-harvest season, by initiating a door-to-door awareness raising campaign focusing on preventive and rehabilitative feeding practices and low-cost, locally grown foods that would enrich the standard diet.





Vurhonga 2 project staff trained a total of 2,350 volunteers in Chokwe District, who in turn trained and supported a total of 23,500 households for the second project. Though many projects include training of community health volunteers, the World Relief Care Group Model developed through Vurhonga 1 is unique in the large number of volunteers trained to maintain a low ratio of volunteers to households (1:15).

Beneficiary households targeted in Vurhonga 2 included every home with either a woman of childbearing age (15–49) or a child under 5 years old. Given the socio-cultural structure in rural Mozambique, these criteria include nearly every household. Such an extensive network enables total saturation of a large project area in a way that still allows for intensive one-on-one training in health intervention messages with every mother in every home.

The World Relief local staff team focused an extensive level of effort on developing a network of Care Groups as a strategy to nurture, empower and motivate volunteers. Care Groups provide unpaid volunteers with incentives including: peer collaboration, an opportunity to participate and feel supported by group membership, and the skills necessary to be effective and credible community leaders. Each volunteer's self-esteem continues to be reinforced through support and encouragement from a Vurhonga mentor and fellow volunteers, particularly as communities begin to comply with behavior change messages and C-HIS data indicate decreased illness and death. World Relief has continued to mature the Care Group strategy in Mozambique and has applied the strategy to subsequent child survival efforts in Cambodia, Malawi and Rwanda.⁶

Sustainability of Volunteer Activities

The support and motivation inherent in the Care Group Model has enabled a high rate of volunteer retention during Vurhonga 1 and Vurhonga 2, and contributed to the sustainability of volunteer activity beyond the official end of the World Relief-supported child survival projects. Volunteer attrition rates from beginning to end of the Vurhonga 2 project remained below 2%, and surveys within Guija and Mabalane districts 20 months after the end of Vurhonga 1 showed that the volunteers, Care Groups and village health committees continued to function at a high level. Specific activities sustained after World Relief ceased to operate in the two districts are summarized below.

6. Other PVOs, including Curamericas, Freedom From Hunger and International Rescue Committee, have employed the Care Group Model in various geographic and cultural contexts.

Sustained Volunteer Activity 20 Months after Vurhonga 1
(Averages measured in Guija and Mabalane Districts, August 2001)

- 93% Care Group volunteers still active (i.e. performing home visits)
- 60% surveyed households reported a volunteer visit within past 2 weeks
- 80% of children under 2 years with fever treated for malaria within 24 hours
- 78% of village health committees still active
- 87% of *socorristas* still provided 1st line treatment services, allowing expanded access to health care by decreasing the distance families must travel.

Project Costs

The 4-year project budget included costs for all Vurhonga 1 intervention areas (malaria, diarrhea and hygiene, ARI/pneumonia, immunization, nutrition/micronutrients, maternal care, birth spacing and HIV/AIDS). The average cost per beneficiary household was \$14 a year. Significant investment was made in training, as *Vurhonga's* strategy depended on successful transfer of preventative and care-seeking health practices from staff to volunteers to households.

Nurturing partnerships with Village Health Committees (VHCs), other community leaders and with the MOH required significant staff time, however, once the Care Group network and partnerships were able to function with less input from the USAID child survival project, delivery of additional health messages and activities became possible at minimal cost. For example, during the 2000 flood relief effort, World Relief and other organizations were able to use Chokwe's Care Group network to distribute emergency supplies and transmit timely warnings and updates regarding waterborne diseases. Coordinating such efforts through the Care Group network is an affordable approach, particularly as volunteers and VHCs maintain interventions without additional donor support.

Controlling Malaria through Community Network Development

Building capacity at the community level to enable behavior change is critical in rural contexts where a majority of childhood deaths occur in the home. The Vurhonga program built upon cultural traditions of collaborative community efforts and existing groups (e.g., women's associations, governing counsels) and in some cases revived community organizations (i.e., VHCs) that could support Care Group volunteers. The benefits of participatory approaches are evident in building and sustaining community capacity to effectively address harmful practices and bring about a transformation in the behavior and perception of caretakers.

Village Health Committees

At the beginning of the Vurhonga program, VHCs were either non-existent or not operational. Linking Care Groups to the development and institutionalization of the VHCs became a priority early on within Vurhonga 2, as project staff recognized that these two community structures would provide each other with support beyond the life of the project. VHC members were elected from all levels of the community and included village leaders, women's groups, traditional birth attendants (TBAs), church leaders, traditional healers, Care Group leaders, and *socorristas*. Project staff provided mediation early on in VHC development, and leadership training to help members understand their respective roles, interpret data from the C-HIS, and identify recourses for action. As the VHCs matured, they each elected a leader known as the chef-de-saude (Chief of Health), and the VHC role has broadened to include community governance, determining financing mechanisms for community needs, regulation of latrines and sanitation systems, and conflict resolution. Vurhonga staff trained VHC members, who often organized training meetings for both VHCs and Care Groups together. These joint training sessions helped build mutual trust and respect between VHCs and the Care Groups, paving the way for the VHCs to rely on volunteers for regular training updates and to provide supportive supervision for the Care Groups as Vurhonga staff weaned their involvement and prepared for phase-out.

During the final evaluation of the project in Chokwe District, members of VHCs commented on the impact of Vurhonga 1 in their village, stating that they had "learned how to talk to one another" with the guidance of their Vurhonga staff animator. In the same discussion, members stated that they intended to continue meeting and expressed that it would further encourage them if they were to be part of a larger association of VHCs that would enable community governance and effective problem solving both beyond individual villages.



Pastors and Traditional Healers

Prior to the program, it was common for caretakers to seek remedies from traditional healers (*Inyanga*) or pastors from the Zionist, or indigenous churches. World Relief identified the need to build capacity among these authoritative figures to maintain consistency in community transformation and behavior change, and therefore sought to include both traditional healers and pastors in the program's outreach strategy. Staff recruited traditional healers to join VHCs and occasionally to serve as volunteers, and created an additional set of Care Groups made of up local pastors. These pastor Care Groups were trained with the same health intervention messages as the volunteer Care Groups. However, instead of acting as trainers through home visits, the trained pastors were able to reinforce the volunteer Care Groups' work by incorporating the same health information within weekly sermons.

As highly influential members of the community, the pastors were a strong force in encouraging community-wide behavior change. Trained pastors and traditional healers who were able to recognize danger signs and endorse sound health practices provided an additional opportunity to identify sick children in critical need of treatment. Support and participation from these credible community members further facilitated compliance with ITN use, prompt care-seeking, and appropriate drug treatment. Their influence was essential in dispelling misunderstanding about malaria and harmful traditional treatment practices.

Strategic Partnerships

Effective partnerships at the community, district and national level facilitated an integrated and sustainable malaria control effort.

Effective Community-Based Malaria Control

Establishing Community Infrastructure	Program Commitments
<ul style="list-style-type: none"> • Supportive role of VHC • Volunteer CG • Pastor CG • Cultural BCC strategies • C-HIS 	<ul style="list-style-type: none"> • Training volunteers • Community mobilization • Monitoring/Supervision • Establishing links between community and health system

Integrating Vurhonga's Mosquito Net Component

When the Vurhonga project began, use of ITNs within communities of Gaza province was rare due to a lack of awareness of the etiology, prevention and management of malaria. Baseline surveys investigating cultural beliefs and practices revealed the common perception that “muzototo”, the Shangan name for fever, was caused by either evil spirits or eating too much watermelon (probably due to climatic factors during watermelon harvest season when prevalence often increases).

Efforts to control malaria were initiated early in the project, and were accelerated in response to floods that devastated Gaza province in 2000. World Relief staff and the volunteer Care Group networks, including those created within Vurhonga 1, agreed to partner with OXFAM International and Concern Worldwide to facilitate an emergency distribution of ITNs free of charge to communities affected by the flood. Having already established significant community networks through Care Groups within each village of Chokwe, Guija and Mabalane Districts, Vurhonga 2 staff and volunteers were responsible for the delivery of ITNs and retreatment kits. The high level of coverage achieved throughout Gaza province, along with community education efforts carried out at the household level through Care Group volunteers, were successful in preventing a malaria epidemic in the post-flood period.

Feedback from UNICEF representatives at a Maputo Working Group for Malaria Prevention and Collaboration Among NGOs, held in April 2000, confirmed that the Vurhonga project was uniquely effective in achieving high rates of net retreatment, in contrast to strategies employed within other districts during and since the flood emergency. Though several NGOs were contracted to promote the sale of retreatment kits outside Gaza, coverage rates were still less than 20%. With no extra compensation, World Relief project volunteers worked through Care Group networks to achieve rates of 80–95%.⁷

The high rate of compliance at the household level was achieved through the work of volunteers, who led and supported their neighbors in net procurement, retreatment and sustained use. Volunteers first adapted the behaviors of procuring and using ITNs in their own homes and then, through house-to-house education, gradually educated their communities so that young children and pregnant mothers slept under ITNs consistently. [ITNs were treated but they require retreatment at a scheduled time. Retreatment kits were distributed for retreatment at the community level. Households were mobilized to bring their ITNs for retreatment.

7. KPC Cluster Survey.

Subsequently, individual households were encouraged by Care Group volunteers to maintain retreatment schedules by procuring retreatment kits at a health facility or local market.]

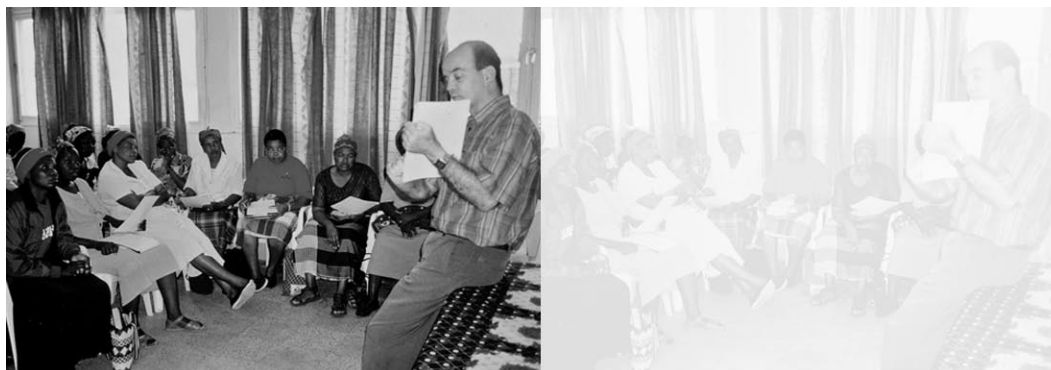
Ensuring continued procurement of ITNs and retreatment kits remains a challenge. After the emergency net distribution at the time of the floods in 2000, UNICEF and Population Services International (PSI) launched a short-term initiative to make ITNs and retreatment kits available at a subsidized price of approximately US 40 cents (for the entire package). Such subsidies made ITNs more affordable than the US \$6 charged at health centers. However, cost continued to be a barrier for many families, particularly in more remote areas where currency is nearly nonexistent. While this case study illustrates that behavior change to achieve high rates of net use and retreatment is possible through community education, the cost of net procurement and retreatment continue to limit compliance. Such obstacles require coordination and joint efforts by the Ministry of Health (MOH), UNICEF and other agencies engaged in the RBM initiative through local vendors and distributors.

Training and Behavior Change

Vurhonga staff conducted an initial training on all interventions (malaria, diarrhea and hygiene, ARI/pneumonia, immunization, nutrition/micronutrients, maternal care, birth spacing and HIV / AIDS) in the first year and held 1–2-week refresher trainings focused on individual interventions. During the training, Vurhonga trainers collaborated with the project manager to develop effective skills and culturally appropriate participatory exercises that prepared them for training the Care Group volunteers. MOH personnel from health centers were also invited to assist with training sessions, and at the same time learn about the Care Group community network.

The health education material covered in the trainings was often new information for the Vurhonga staff. Prior to involvement with the Vurhonga project, few were aware of the causes of malaria or appropriate prevention methods; more than two-thirds were not aware that mosquitoes cause the disease.

Training was conducted with a cascade approach for both the animators and Care Group volunteers. Training topics were broken down into a series of concise lessons and introduced over time to allow staff time to practice corresponding training skills, slowly building their knowledge base in sequential blocks to maximize retention and capacity for analytical reasoning. Key health messages addressed transmission of malaria, prevention, recognition, and care-seeking. Each message formed a training topic or series of topics introduced within the Care Group forum, with corresponding discussion and participatory learning exercises.



“Volunteers cited numerous examples of changes in attitudes and practices [of caregivers]. In the past, mothers would wrap a feverish child with heavy blankets and roll the child in ashes when a child experienced convulsions. Mothers now say that they know they are supposed to wrap the child in a cool, wet cloth and take the child right away to the health post or health center for treatment.”

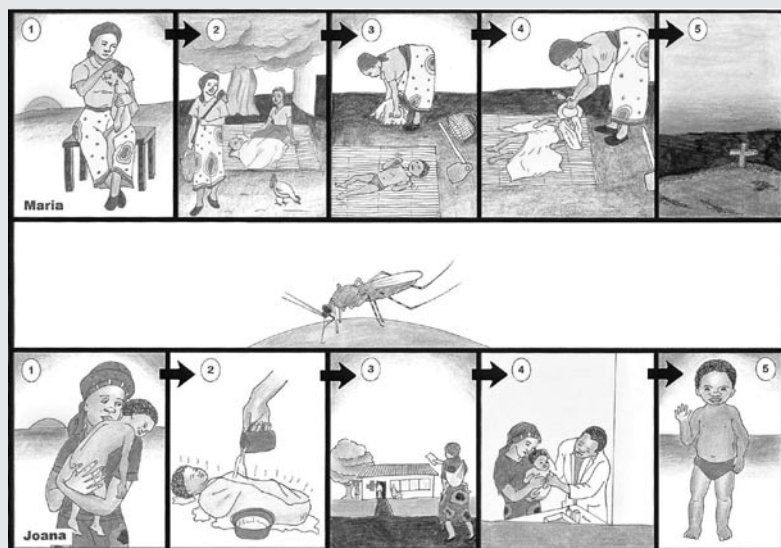
—*External Evaluation Consultant, Dr. Franklin Baer*

Insightful design and successful transfer of training skills from Vurhonga staff to volunteers to was key to increasing preventative and care-seeking behavior and compliance with treatment. Animators were equipped with and taught to incorporate pictorial teaching aids (see graphic, page 16) when training mothers about net use, home care and danger signs for referral. Within the Care Group meetings, volunteers learned and practiced strategies for increasing understanding about malaria as a disease caused by mosquitoes and to dispel misconceptions that malaria symptoms are caused by bewitching.

Sample Health Education Messages Used During Training

Message 1	Malaria is caused by mosquitoes and not by witchcraft.
Message 2	Malaria can be prevented by regular use of ITNs. Elimination of standing water removes breeding sites for mosquitoes.
Message 3	Children under 2 years old and pregnant women with malaria have a higher risk of dying from malaria and must use an ITN every night.
Message 4	If a child has any of the following symptoms, take the child IMMEDIATELY to the health center: fever, not able to drink or breastfeed, convulsions, vomits everything.
Message 6	Children with fever must be given a cool compress and taken for treatment to a trained health provider within 24 hours.
Message 7	ITNs must be treated with insecticides/chemicals once per year.
Message 8	Full compliance with drug treatment is important to ensure that malaria does not recur.
Message 9	The Village Health Committee, Care Groups and health providers are working together to ensure that children and mothers are healthy and receive affordable quality care and treatment.

Animators used pictorial teaching aids to train mothers about net use, home care and danger signs.



Vurhonga staff provided supportive supervision for volunteers through Care Group meetings, where volunteers were evaluated orally on their malaria and child health knowledge. The Vurhonga project developed standard checklists to monitor and improve performance at all levels. Volunteers who did not initially demonstrate uptake of the information were mentored and accompanied on home visits by either their Vurhonga staff trainer or a stronger volunteer until they no longer needed extra support.

Experience and lessons learned within the Vurhonga 1 project enabled Vurhonga staff to refine communication approaches and teaching methods to be culturally relevant and, therefore, more effective. Common in many southern African societies, songs and oral recitation were identified to be a highly effective means of relaying malaria messages to caregivers and other community members, particularly in areas with the lowest rates of literacy. Songs created by volunteers with lyrics that describe malaria's symptoms and remind listeners about immediate treatment have been highly effective in transmitting an initial message and later reinforcing it.

As the signs, symptoms, complications and treatment of malaria were discussed, Julieta Muhlana, an animator recruited from Dzulu village, started crying. When asked what was wrong, she said that if only she could have received this knowledge earlier in her life some of her children might still be alive today. Only now she realized that they had malaria, and because it was treated in the traditional way they ended up having convulsions and died. Julieta said that many from her village are still in the same position she was, of not knowing about malaria as the cause of fever. She became even more determined to build her training skills so that she could go out and tell her neighbors the truth.

—from an Animator Training Session in Massingir District, Gaza Province

Malaria Song

If your child has a fever (2X)
And doesn't have diarrhea
And doesn't have a cough
It is MALARIA

Take your child to the hospital (2X)
Start Cloroquin* the first day
Continue for 2 more days

When he gets better (2X)
Give him extra food 3 times each day.
Do this for 2 weeks
so he will live for many more years.

** or other 1st line drug for treatment*

Creating Effective Links with the Health System

The Vurhonga project staff included District MOH health facility personnel in IMCI training sessions to ensure that clinical care standards for malaria treatment and prevention were emphasized. However, at the beginning of Vurhonga 2, community-wide access to care with a trained provider was woefully inadequate; only 60% of the population had access to health services. Baseline surveys indicated distances of over 80 kilometers between health facilities and some villages within the project area. To improve access, the project facilitated the training of *socorristas*, providers who are trained and monitored by the MOH and authorized to provide basic primary care and essential drugs at remote health posts. The *socorristas* are governed by the VHCs, who ensure that fees for services remain affordable to communities and that those who cannot afford to pay receive services at no cost. Fees at health posts range from 4-40 cents per child. The addition of *socorristas* increased community-wide access to 95% of the target population, enabling caretakers to seek treatment within 24 hours for fever.

World Relief supported the management of drug supplies at the health facility level. However, Vurhonga staff worked collaboratively with *socorristas* to ensure essential drug supplies at the health posts by tracking and reporting stock-outs that lasted more than 3 days. This monitoring system ensured that health posts within the project area were well stocked with first-line treatment; stock-outs averaged less than 5% at health posts within Chokwe district.

In addition, Vurhonga volunteers educated and encouraged pregnant women to access antenatal care services at health facilities where they could receive antimalarial drugs.

Monitoring and Surveillance

As in any program, the development of an effective system for collecting and sharing information within the target communities and the health system was key to achieving success. Vurhonga project staff conducted quarterly quantitative assessments and a 30-cluster survey to monitor progress toward intervention objectives at the midpoint and end of the child survival project. The Care Group strategy facilitates timely tracking of vital data through the C-HIS. Vurhonga project staff compiled and disseminated information gathered on a monthly basis through meetings with the health district. The C-HIS is well integrated within the district MOH system and has become a reliable mechanism for obtaining current and accurate health statistics. Toward the end of the child survival project, VHCs assumed responsibility for reporting C-HIS data to the MOH.

Motivation to maintain C-HIS data collection clearly stems from the value that communities place on the system as tool to inform both individual and collective action. In July 2001, quarterly surveys conducted by Vurhonga staff indicated declining ITN use due to the perception within local communities that mosquitoes were less prevalent during the dry season, and therefore ITNs were not required. VHCs and Care Groups responded by reviewing malaria intervention messages within Care Group meetings, emphasizing ITN use at all times of the year. A subsequent decline in incidence of fever during the following months corroborated the benefits of consistent net use within communities.

Vurhonga Project: Key Success Factors

- Building health system capacity to ensure services, and quality of care consistent with IMCI guidelines.
- Developing and maintaining strategic partnerships with malaria partners: UNICEF, USAID, NGOs and the Ministry of Health.
- Effective links between community stakeholders and the district health system through established relationships and mutual accountability.
- Establishment and governance of sustainable community infrastructures: volunteer Care Groups, Pastoral Care Groups, Traditional Healers, Village Health Committees, Community-based Health Information System linked to MOH.
- Multipronged approaches for health education behavior change using visual images, song, dance, drama, group repetition, social support through Care Groups, peer support, and recognition of MOH and village leaders.
- Creating a critical mass of change agents in the community through extensive volunteer networks that facilitate behavior change through modeling, demonstration, awareness raising and effective training skills.
- Ensuring access and affordability of ITNs and health services.
- Visible evidence of reduced mortality due to malaria leading to change in traditional perceptions of cause and treatment practice.

Next Steps

National distribution of long-lasting ITNs has yet to occur in Chokwe district. The reduction of tariffs and introduction of vouchers subsidizing the ITNs for vulnerable groups would further facilitate the procurement of ITNs and increase coverage, as has been demonstrated in other countries (i.e., Zambia, Tanzania). With diminishing RBM funding, countries need to identify alternate resources to sustain achievements in widening access to ITNs.⁸

Scaling up the Care Group strategy by applying the process described by Taylor-Ide and Taylor⁹ will demonstrate the effectiveness of achieving and maintaining RBM goals and illustrate impact on sustained behaviors and reduced incidence and malaria mortality. Further studies are warranted to fully examine community-based approaches to malaria prevention and treatment.

The challenge of rolling back malaria is immense, but not insurmountable if partnerships can be created to address the problem with collective community and health system resources. As governments, RBM partners, and research experts increase efforts to reduce tariffs, increase availability and affordability of ITNs and essential drugs for treatment, design long-lasting ITNs, and improve drug therapy, communities have a responsibility to improve behaviors for prevention and increase care-seeking and treatment for malaria. In addition, Ministries of Health must ensure availability of effective and affordable drugs among marginalized populations.

I learned that malaria is caused by mosquitoes and that I didn't have to be afraid that my child received a curse. I can prevent malaria by using the net and keeping standing water away from my home.

—Mathidle Zuza, a mother targeted by the Vurhonga project, Chokwe district

8. "Malaria in Africa", Roll Back Malaria Info Sheets. www.rbm.who.int

9. Ide-Taylor, D., Taylor, C. Just and Lasting Change; When communities own their future. Johns Hopkins University Press, Baltimore, Maryland, 2002.

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